

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

WISCONSIN ALUMNI RESEARCH
FOUNDATION,

Plaintiff,

v.

INTEL CORPORATION,

Defendant.

OPINION and ORDER

08-cv-78-bbc

This is a patent infringement suit involving computer hardware. Plaintiff Wisconsin Alumni Research Foundation alleges that defendant Intel Corporation's products infringe plaintiff's United States Patent Number 5,781,752 (the '752 patent), a patent involving computer processor architecture, and that defendant's infringement is willful. Aside from the standard defenses and counterclaims (noninfringement, invalidity), defendant contends that it has a license to the '752 patent or, in the alternative, that the patent should not be enforceable against defendant for equitable reasons. Plaintiff's patent is derived from research performed at the University of Wisconsin-Madison; defendant contends that it provided conditional funding for the research project that brought about the invention

claimed in the '752 patent.

The case is before the court on the parties' cross motions for partial summary judgment. Plaintiff has moved for summary judgment on defendant's license-related defenses and defendant has moved for summary judgment on one of its theories of invalidity and on plaintiff's claim of willful infringement. (In addition, plaintiff has moved for leave to file a surreply to defendant's motion for summary judgment after defendant raised new arguments in its reply brief. That motion will be granted.)

I will grant most of plaintiff's motion for summary judgment. I conclude that the parties' written funding agreements are ambiguous, which means the circumstances in which they were made must be considered. Those circumstances establish that the parties did not intend to grant defendant a license to intellectual property in exchange for the funding. Moreover, because defendant did not start developing the allegedly infringing products until after plaintiff offered to license the '752 patent, there exists no "implied license" or related equitable basis for barring plaintiff's infringement suit. I will deny plaintiff's motion with respect to two of defendant's counterclaims and defenses: any "waiver defense" not related to plaintiff's conduct leading up to January 2001 (when plaintiff sought to offer a license to defendant) and defendant's "unclean hands" defense. Plaintiff failed to identify a basis for summary judgment on either of these claims.

As for defendant's motion, I will deny it with regard to defendant's theory of

invalidity and grant it with regard to plaintiff's claim of willful infringement. Defendant's theory that claims 1 and 2 of the '752 patent are anticipated by four "memory reference tagging" techniques identified in United States Patent Number 5,619,662 does not hold water. Upon determining the proper scope of the term "prediction" as used in the '752 patent (a matter left incomplete by the court's earlier construction), I conclude that none of the four memory reference techniques disclose all the elements claimed in the '752 patent. I will grant defendant's motion as to plaintiff's claim for willful infringement because defendant's licensing defense was a relatively close question, which means that plaintiff cannot establish the "objectively high likelihood" of infringement required to establish willful infringement.

Before turning to the motions, a word about procedure is in order. I have drawn the undisputed facts from the parties' proposed findings of fact and the record. However, a large number of the facts proposed by the parties have been disregarded. In some instances, this is for the usual reasons (the facts are not necessary to resolve the parties' disputes or the evidence cited does not support the fact proposed). However, many of the facts related to defendant's express license defense have been disregarded as irrelevant, including the parties' dealings regarding unrelated funding, defendant's later-developed internal system for organizing funding agreements, conclusory statements regarding defendant's unexpressed "intent" and whether and why plaintiff was wrong to classify defendant's funding as a "gift"

under its policies. All that is relevant to the question whether plaintiff expressly licensed the '752 patent is the language of the parties' agreements, Erickson v. Gunderson, 183 Wis. 2d 106, 117, 515 N.W.2d 293, 299 (Ct. App. 1994), and, if that language is ambiguous, "the conduct of the parties and negotiations which took place, both before and after the execution of the documents, and . . . all related documents of the parties." Smith v. Osborne, 66 Wis. 2d 264, 272, 223 N.W.2d 913, 917 (1974); see also Brest v. Maenat Realty Co., 245 Wis. 631, 635, 15 N.W. 2d 798, 800 (1944) (parties' other agreements not relevant to intent of parties unless those agreements relate to same transaction and have same object as agreement at issue); Gerruth Realty Co. v. Pire, 17 Wis. 2d 89, 95, 115 N.W. 2d 557, 560 (1962) (evidence of what defendant "had in mind" irrelevant because "it was not communicated" to the other party). The facts related to other universities' approaches to funding will be disregarded as lacking foundation. Although the parties' intent sometimes requires a court to consider what "persons in the business to which the contract relates" might understand, Columbia Propane, L.P. v. Wisconsin Gas Co., 2003 WI 38, ¶ 25, 261 Wis. 2d 70, 661 N.W. 2d 776, the parties have not laid the proper foundation for their testimony regarding what other universities' approaches to funding are.

I. LICENSING DEFENSES AND COUNTERCLAIMS

UNDISPUTED FACTS

A. Parties

Plaintiff Wisconsin Alumni Research Foundation is a not for profit Wisconsin corporation having its principal place of business in Madison, Wisconsin. Plaintiff is the patent management organization for the University of Wisconsin, supporting research at the university by patenting and licensing university inventions and by returning the proceeds of that licensing to fund additional research at the university.

Plaintiff owns United States Patent No.5,781,752 (the '752 patent). The named inventors of the '752 patent include Gurindar Sohi, Andreas Moshovos, Scott Breach and Terani Vijaykumar. At the time of the invention, Sohi was an associate professor in the Computer Sciences Department at the university and a researcher in the field of computer microprocessor architecture. Moshovos, Breach and Vijaykumar were graduate students and research assistants in the university's Computer Sciences Department.

Defendant Intel Corporation is a Delaware corporation with its principal place of business in Santa Clara, California. Defendant makes semiconductor chips and develops advanced integrated digital technology products for industries such as computing and communications. Primary among defendant's technology products are its integrated circuits, which are semiconductor chips etched with interconnected electronic switches.

B. Intel's Award of Funding to Sohi

1. Discussions leading up to award of funding

By May 1994, Sohi was becoming well known for his research in computer microarchitecture, particularly in an area called “instruction level parallel processing.” He was working on a project that he referred to as the “multiscalar paradigm” that involved using a collection of scalar processors to cooperate in the efficient execution of a sequential program. Sohi’s research focused on developing a new architectural paradigm that would allow multiple sequences of instructions to be executed simultaneously on several connected processors to improve the overall speed at which programs could be loaded. By May 1994, Sohi’s research on multiscalar architecture was underway and was being supported by the National Science Foundation and the Office of Naval Research in amounts totaling approximately \$200,000 annually.

Defendant had established a “Research Council” to support university research in the technology areas in which defendant was involved. Among the research areas the council had targeted was microcomputers, which included work in “processor architecture.” In early 1994, Sohi’s work on computer processor architecture came to defendant’s attention. On May 31, 1994, Hans Mulder, a representative of defendant, emailed Sohi about defendant’s university-research grant program. Mulder told Sohi that his “work on the Multiscalar architecture . . . could be applicable for support from Intel.” Mulder offered to fax Sohi information about defendant’s grant program and a sample research proposal. A few hours

later, Sohi responded by email, stating that he was interested in having defendant's support for the "multiscalar work" and that a sample proposal would be "nice."

The next day Mulder faxed Sohi an Intel brochure describing the grant program and a sample research proposal. The brochure explains that "all grants made through the Research Council require an Intel sponsor to champion the idea within Intel and act as liaison to encourage the technology transfer between the university and industry." Under the heading "Grant Amounts," the brochure includes the following statement: "Grants are generally between \$20,000 and \$50,000 per year. The grants are made as an unrestricted gift to the university. Intel will not cover university overhead costs as part of a grant."

According to the brochure, "[r]esearch projects are funded for no longer than three years and are reviewed annually." In addition, the brochure explains that certain criteria are used to determine whether a research proposal would receive funding, such as: "What kinds of information will be shared? Is the joint use of equipment or facilities proposed? Is the approach the best alternative or a new alternative or will it advance technology? What will result from the research: seminars, papers, software?" Under the headings "Guidelines for Preparing a Proposal" and "Reporting Plans," the brochure states that an applicant should "[d]escribe [his] plans for monitoring the project's progress and the publication of results. Intel requests routine reports describing the progress made toward attaining your research goals." It was typical for professors receiving funding to submit progress reports and make

presentations to defendant's engineers to justify continuation of their funding.

The sample proposal that Mulder faxed Sohi included a budget that listed an amount for university overhead. Shortly after receiving the faxed materials, Sohi emailed Mulder to ask about "some administrative issues" before he started writing the proposal. In particular, Sohi noted that "the way the proposal is written depends upon some of the administrative issues (this determines the number of UW bureaucrats who get involved in the process)." On June 3, 1994, Mulder responded in an email with the subject "Grant explanation." He stated, "Guri, Intel provides an unrestricted grant to the research group that won the grant. The amount is based on a budget you provided. However the grant is unrestricted which in principle allows the research group to [do] with it what they want. The check will be written out to the university or department though. In the example I sent you, the overhead part was removed later. So don't go through your bureaucrats with the proposal. When approved, you will get a "gift" from Intel, officially unrestricted, unofficially for the work in the proposal." (Defendant had a policy against paying indirect costs as part of research grants, to maximize the research money available to the professors doing the research.)

By June 8, 1994, Sohi had submitted a draft research proposal to defendant, titled "Investigation of the Multiscalar Paradigm." Mulder disclosed the draft proposal to his colleague, Konrad Lai, and asked Sohi to "[p]articularly specify specific milestones and deliverables." As Mulder recalls, this request for revision to the research proposal was for

“more specificity on what’s going to be delivered” and to “make clear what was going to be—maybe how we were going to facilitate the technology transfer.”

In response to Mulder’s request for revision, Sohi submitted a final research proposal.

The objectives described in the proposal included

creat[ing] an environment in which a bidirectional transfer of technology and expertise can occur Industrial involvement is critical at this point; Intel would be the ideal industrial partner. Increasing the person-power is also crucial, since the evaluate, understand, rework, evaluate cycle is very person-power intensive. This research proposal would: (i) ..., (ii) allow us to obtain valuable industrial input in our design decisions, (iii) create an environment in which our technology could be transferred to Intel.

In addition, the proposal listed the following as “deliverables from the research carried out in the first year”:

Detailed results of our experiments and their analyses
Papers and technical reports describing aspects of the multiscalar architecture.

A preliminary assessment of the enhancements required to [defendant’s product] the x86ISA [instruction set architecture] and/or binaries to use the multiscalar concept. Semi-annual (or more frequent if desired by Intel) progress reports detailing progress made towards attaining the above research goals.

In addition, we will also make our software (simulators and compiler enhancements) available to Intel engineers who wish to use the software tools to understand and/or carry out their own studies of the multiscalar concept.

Sohi’s research proposal does not state explicitly that any inventions, patents or intellectual property would be provided as “deliverables.” It concludes with the statement:

“Indirect Costs will not have to be paid if the money is given as an unrestricted gift.” Mulder and Sohi never discussed making the transfer of intellectual property rights one of the conditions of receiving defendant’s grant or discussed the specific terms of defendant’s funding at all. Defendant’s employees, Mulder and Konrad Lai, told Sohi that defendant was interested in “seeing the data from [Sohi’s] experiments” and “referred to the results as data from the experiments.” According to Mulder, intellectual property was “not on [his] radar screen” but instead was “on somebody else’s radar screen.”

Several months after Sohi submitted his proposal, he wrote Mulder to ask whether defendant was still interested in his proposal. On November 9, 1994, Dan Lau, one of defendant’s employees, emailed Sohi to ask for the name and address of “the university representative who can sign the grant agreement and will be receiving the money” and to ask whether certain items in the proposal budget were considered university overhead because defendant would not fund any overhead. Sohi responded that the items listed in the proposal budget would “not be overhead that some bureaucrat gets.”

Shortly thereafter, defendant told Sohi that defendant had accepted his proposal. The expected total grant was \$89,000, with \$28,000 accepted for his first year and \$30,000 and \$31,000 for the second and third years. Although the grant was for three years, the funding was to be reviewed yearly.

2. 1994 funding letter

On December 8, 1994, defendant wrote Marvin Solomon, then-chair of the university's Computer Sciences Department, announcing the first year grant of \$28,000, effective with the fourth quarter of 1994. The letter states:

No restrictions per se are imposed on the grant except that it be used solely to support basic research in the technologies previously mentioned, and that Intel shall have unrestricted rights at no cost to the results of this research. No overhead costs are included in this grant. Will you please *sign and return* to me this letter indicating your acceptance of this basic research grant subject to the following conditions:

1. Grantee certifies that it is a qualifying institution as required under Section 41(6)(e) of the Internal Revenue Code.
2. Grantee agrees to use the property described above for research as defined under Section 41(e)(2) of the Internal Revenue Code and related regulations.

When we receive this letter back, we will forward the funds to you.

Below the body of the letter was a space for a grantee to sign and date the letter, under a line stating "ACCEPTED." The 1994 funding letter was "substantially the same" as letters sent to other grant recipients in 1994 and was one of defendant's "standard letters." Sohi did not receive a copy of the 1994 funding letter.

David Konshak, an assistant trust officer at the University of Wisconsin System trust office, countersigned the letter and had it returned to defendant. A \$28,000 check arrived from defendant in January 1995 and was deposited in a trust account. On January 19, 1995, department chair Solomon wrote to defendant's Ann Bynum on behalf of Sohi and the Computer Sciences Department, thanking defendant for its "generous donation to the

University of Wisconsin—Madison.” Bynum did not respond to Solomon’s January 19, 1995 letter, and did not object to or correct Solomon’s characterization of defendant’s funding as a “donation.”

Solomon filled out an “Extramural Transmittal Form,” describing defendant’s funding as “[i]n support of graduate research programs in Computer Sciences.” The form stated that \$28,000 was “enclosed” and was to be added to a particular “161” account. The form went to the university’s “Research Administration- Financial Department,” which is responsible for reviewing and approving sponsored research projects and their compliance with university policy. Under Solomon’s signature is a statement that he “confirms knowledge of and agreement with UW Madison Patent Policies appearing on reverse side of this form.” The terms include disclosing promptly any invention conceived to the department chairperson and dean, complying with the provisions of any agreement between the university and any sponsor and cooperating to assure that a sponsor’s invention and patent rights are protected.

3. 1995 funding letter

In 1995, Sohi and another university professor, James E. Smith, obtained additional grants from the National Science Foundation and the Advanced Research Projects Agency totaling approximately \$2.37 million for three years.

Because Sohi was a “sponsored teacher,” Mulder asked Sohi to make a presentation to defendant’s engineers about his research. On October 26, 1995, Dr. Sohi traveled to defendant’s Santa Clara facility and presented his work on the topic of “The Multiscalar Processing Paradigm” to a group of defendant’s engineers and other sponsored researchers.

That same month, Sohi, and his research assistants Breach, Moshovos and Vijaykumar conceived the invention that led to the ‘752 patent. The inventors began reducing their invention to practice immediately after its October 1995 conception and completed the work by March 1996.

In October 1995, Mulder asked Sohi for a status report on his research and his plan for 1996. On November 3, 1995, Sohi submitted his “1995 Progress (Report) and 1996 Research Plans” to defendant. The report described 1995 as a “very successful one for the Multiscalar project.” It made a passing reference to “incorporating simple memory dependence analysis information,” the subject of the ‘752 patent, but did not mention that Sohi and his group had conceived of what they thought was a novel, patentable idea.

Before defendant renewed Sohi’s funding for a second year, Sohi submitted a progress report to defendant regarding his “Investigation of the Multiscalar Paradigm.” On November 14, 1995, defendant wrote Solomon, still chair of the Computer Sciences Department, announcing that the second year of funding had been approved for Sohi in the amount of \$30,000, effective beginning the fourth quarter of 1995. The terms of the 1995

funding letter were identical to the terms of the 1994 funding letter, except that a clause was added following the request that the letter be signed and returned “subject to the following conditions.” The new clause added that:

It is our understanding that these funds will be used for research and that this grant will be acknowledged in publications, press releases and publicity for the program. We request copies of these materials as they become available. Acknowledgments of the grant should be made to Intel Corporation.

As with the 1994 letter, the 1995 letter included a space for a grantee to sign and date the letter below the body of the letter, under a line stating “ACCEPTED.” The 1995 funding letter was “substantially the same” as letters sent to other grant recipients in 1995 and was one of defendant’s “standard letters.” Sohi received a copy of the 1995 letter funding letter.

As with the 1994 funding letter, the 1995 funding letter was forwarded to the University of Wisconsin System trust office. On December 7, 1995, Sohi wrote to defendant’s Ann Bynum, explaining that “our grants people are getting the paperwork taken care of for the research grant (\$30,000) and you should have it shortly.” Sohi did not raise any concern about the terms of the letter agreement with Bynum or, at the time, with defendant, his department chair or the trustee.

The 1995 letter was countersigned by Konshak and returned to defendant. The funds received were deposited in the same account as the 1994 funds. (The parties dispute whether Sohi used any of the funding from defendant before September 30, 1996. Plaintiff

adduces evidence that the account containing the funds remained in the account untouched until September 30, 1996, at which time they were transferred to an administrative account. Defendant points out that Sohi stated in documents to the federal government that he had used defendant's funds in developing the '752 patent, which was near completion before September 30, 1996. He made similar statements in a June 1996 report to the university, in a 2000 report to the National Science Foundation and on his curriculum vitae, where he described defendant as having provided "financial support.")

4. The patent application and the university's equity review process

In the spring of 1996, Sohi met with plaintiff to disclose the idea claimed in the '752 patent and begin the patent application process. On April 17, 1996, plaintiff sent a letter to Sohi and the university indicating its interest in the invention. The inventors and plaintiff's personnel met with a patent lawyer and began drafting the patent application, which was nearly complete by the first week of August 1996.

In May 1996, the university began an "equity review" process to determine its obligations to the organizations that had provided funding for Sohi's research. The "equity review" was used to identify those entities that might claim an interest in the invention or might be entitled to receive notice of applications for a patent on the invention. In connection with the equity review process, the inventors were asked to complete an

Invention Record and Report, which they completed and signed on June 18, 1996. In the report, the inventors stated that the conception date of the invention was October 1995 and the first written record pertinent to the invention was in March 1996 (when the inventors drafted a paper describing the alleged invention). In addition, the inventors identified defendant as one of the sources of funding that was “used by the inventors regardless of purpose or use during the period starting with the conception date of the invention” and that “contributed to the invention.”

After completion of the equity review process, the university decided it did not need to give notice to defendant of the patent because defendant’s funding had been classified as “gift” funding on the invention disclosure form prepared by faculty and had been placed into an account used for “gifts” (the “161” account). Moreover, payroll records showed that the inventors had not been paid using defendant’s funds. Because the university considered the funding a “gift,” it did not review the 1994 or 1995 letters when deciding not to provide notice to defendant.

The inventors assigned their interests in the invention to plaintiff, as required under university policy. Plaintiff filed the patent application on December 26, 1996. The ‘752 patent issued on July 14, 1998.

5. 1996 funding letter

By early 1996, Rick Hodgson assumed management of the academic research funding provided by defendant's Microcomputer Research Lab. During 1996, Sohi and Hodgson negotiated the language used in defendant's funding letter. (The parties dispute whether Sohi and Hodgson discussed the meaning of the language used in the earlier 1994 and 1995 funding letters or limited their discussion to the language to be used in the 1996 letter.) Sohi asked that the language state expressly that defendant's right of access to the results of the research is limited to use of the research "for internal evaluation purposes." In addition, Sohi told defendant's Lai that his proposal was written on the assumption that the funds would come as an unrestricted gift and if defendant wanted some sort of "contract" instead, the scope of the research would have to be narrowed "considerably."

In connection with the renewal of defendant's funding for the third year, Sohi provided defendant an "Annual Progress Report" dated October 9, 1996, regarding his research on the multiscalar project. Sohi reported that during the previous year of research on the project, he and his researchers "developed the idea of data dependence prediction" and that Sohi was "in the process of writing up the ideas and results for submission to [the International Symposium on Computer Architecture]. Sohi did not say he was in the process of obtaining a patent covering data dependence prediction. Defendant's internal project renewal summary for the third year notes Sohi's work on "data dependence speculation."

Defendant renewed Sohi's funding for a third year, effective beginning the fourth quarter of 1996. On October 25, 1996, defendant sent a third-year renewal letter to Jim Goodman, then-chair of the Computer Sciences Department, announcing that the third year of funding under Sohi's proposal had been approved in the amount of \$31,000, effective beginning the fourth quarter of 1996.

The 1996 funding letter differed from the 1994 and 1995 letter. With regard to "restrictions" and "overhead," the 1996 funding letter states that "[n]o restrictions per se are imposed on the grant except that it be used solely to support basic research in the technologies previously mentioned. No overhead costs are included in this grant." The letter describes defendant's rights to the results of Sohi's research as follows:

Professor Sohi intends to keep Intel informed of the research activities pursued under this grant and to make the results and findings of such research activities available at no cost to Intel for internal (non-commercial) use by it and its subsidiaries on [a] non exclusive basis. However, it is understood by both parties tha[t] this agreement entails no grant of license rights to make commercial use of the University's intellectual property.

Sohi received a copy of the 1996 funding letter. The letter was forwarded to the university of Wisconsin Foundation, where it was countersigned by John W. Feldt, Senior Vice President, and returned to defendant. The University of Wisconsin Foundation accepts and manages funds provided as gifts, bequests and donations to the university.

Sohi provided defendant data resulting from his multiscalar research and periodic

progress reports. In addition, he visited defendant on multiple occasions to give presentations on his research related to his work in data dependence.

6. Ongoing relationship between Sohi and defendant

Between at least 1996 and 1998, Sohi and his research assistants made several presentations to defendant's engineers in which they described their patented ideas related to the multiscalar project that defendant funded. Until 1997, at the earliest, Sohi did not mention that there was a patent or a patent application related to these ideas. (Defendant proposed as fact that Sohi did not mention his patenting of the funded inventions to defendant until 2006. However, the only evidence it cited to support this fact is its own interrogatory response stating that it first found out about the '752 patent "not later than" 2006. This proposed fact will be disregarded. Plaintiff's response to defendant's proposed finding of fact makes it clear that 1997 is the earliest date Sohi may have told defendant about the patent.)

Sohi enjoyed frequent collaboration with many of defendant's engineers, accepted many of them as his doctoral students and recommended many of his graduates for employment with defendant. In addition, Sohi asked for recommendations from defendant's engineers for awards, his candidacy for tenure and for his applications for government funding.

In a February 2000 email to an employee of defendant's, Sohi acknowledged that there was a "gentleman's agreement" between him and defendant in which he would not "pursue patents aggressively, but if a situation arose where one was unavoidable," he would "keep [defendant] informed." A number of defendant's engineers had told Sohi that "if they are aware of a patent, they can design around it."

7. Licensing discussions regarding '752 patent and plaintiff's alleged infringement

In January 2001, plaintiff wrote to defendant to offer a license under the '752 patent and a related patent application, enclosing copies of both. Defendant responded promptly that its attorneys would evaluate the '752 patent and the application, but did not provide any further response.

Defendant's Merom was the first processor to include memory disambiguation (a feature related to the invention claimed in the '752 patent). Work on the Merom began as early as September 2001. (The parties dispute whether the memory disambiguation aspect of the Merom started as late as 2003.).

In 2006, Sohi began to believe that defendant was practicing the '752 patent. Plaintiff wrote to defendant, offering a license under the '752 patent. Throughout the spring of 2007, defendant, plaintiff and the university discussed defendant's proposal of a subscription license program, under which defendant would pay a guaranteed annual amount

to the university in exchange for an option to license any patent in certain technologies at a fixed dollar amount. Defendant sought to include the '752 patent in the subscription license program but plaintiff never agreed. By the time plaintiff filed this action against defendant in February 2008, negotiations over the subscription license program had stalled.

At no time before this suit was filed did defendant contend that it already had rights to Sohi's intellectual property or in the '752 patent.

8. The parties' licensing agreement related to processes for manufacturing semiconductors

In 2003, plaintiff and defendant entered into a licensing agreement related to United States Patents Nos. 4,630,094, 4,494,136, and 4,350,994 and any patent that might issue that claimed the benefit of a filing date of any application in the chain of priority of these three patents. John Wiley and John Perepezko are the named inventors on each of these three patents, which relate generally to processes for manufacturing semiconductors.

The Wiley license is expressly limited to the "Subject Patents," which include "United States Patent Nos. 4,630,094, 4,494,136 and 4,350,994 (Including any reexaminations, reissues, divisions, continuations, continuations-in-part, and any foreign related patents or patent applications)" and any patents "that have issued or may issue claiming the benefit of the filing date of U.S. patent application, Serial No. 81,859, filed October 4, 1979 or U.S.

patent application Serial Number 181,988, filed on August 28, 1980 or claiming the benefit of a filing date of any application in the chain of priority of any of the above patents.”

The license states that, “With respect to the Subject Patents and subject to the payments required under this Agreement, [plaintiff] hereby grants the Company [defendant] and its Affiliates . . . a non-exclusive, irrevocable, fully paid-up worldwide license under the Subjects Patents regarding (a) all uses and all products made, have made, sold, imported or offered for sale by the Company and/or Affiliates in the past and (b) all uses and products made, have made, sold imported or offered for sale by the Company and/or Affiliates in the future for the life of each of the Subject Patents. Plaintiff further releases, acquits and forever discharges Company and its Affiliates from any and all claims or liability for infringement (direct, induced, indirect or contributory) of the Subject Patents.”

OPINION

A. Express License

Defendant contends that the terms of the 1994 and 1995 funding letters provide it an express license to practice the ‘752 patent. (Although the 1996 funding letter expressly declined to grant such a license, the bulk of the work on the invention had been completed by that time.) A patent license is “governed by ordinary principles of state contract law.” State Contracting & Engineering Corp. v. Florida, 258 F.3d 1329, 1339 (Fed. Cir. 2001)

(citations omitted). In this case, the parties assume in their brief that Wisconsin law applies to whether defendants have a license, making it unnecessary to conduct a choice of law analysis. Wood v. Mid-Valley Inc., 942 F.2d 425, 427 (7th Cir. 1991) (“Courts do not worry about conflict of laws unless the parties disagree on which state’s law applies.”).

1. The 1994 and 1995 letters as integrated agreements

The primary purpose of contract interpretation is to give effect to the intent of the parties, Dieter v. Chrysler Corp., 2000 WI 45, ¶ 15, 234 Wis. 2d 670, 610 N.W.2d 832, but as a general rule that intent must be drawn from the plain and ordinary meaning of the terms of the contract; extrinsic evidence of intent is disregarded. Huml v. Vlanzy, 2006 WI 87, ¶ 52, 293 Wis. 2d 169, 716 N.W.2d 807. However, extrinsic evidence may be considered to determine which documents and oral agreements make up the entire contract. In other words, extrinsic evidence may be considered to decide “whether the parties intended [a particular written agreement] to be final and complete or ‘integrated’ or whether they intended any prior agreement to be part of their total agreement.” Federal Deposit Insurance Corp. v. First Mortgage Investors, 76 Wis. 2d 151, 157, 250 N.W.2d 362, 366 (1977).

In this case, plaintiff contends that the 1994 and 1995 funding letters are not integrated but instead were part of a larger agreement that included communications

between defendant and Sohi about funding as a “gift” and a research proposal detailing the “deliverables” to defendant from the research. In support of its position, plaintiff points out that the funding letters do not include any integration clause and they include language that is not clearly defined (such as research “in the area” of the project). However, the opposite is equally true: nothing in the funding letter suggests that additional extrinsic documents or agreements make up part of the agreement. As far as the scope of restrictions on funding and defendant’s rights, the language of the agreement addresses these matters, suggesting that the letters are intended as the “final and complete” agreement regarding those terms. The letters provide that “[n]o restrictions per se are imposed on the grant except . . . that Intel shall have unrestricted rights at no cost to the results of this research.” Cf. Danielson v. Bank of Scandinavia, 201 Wis. 392, 230 N.W. 83, 85 (1930) (agreement presumed to be “final and complete” if “the particular element of alleged extrinsic negotiation” is “mentioned, covered, or dealt with in the writing”). To the extent there are missing gaps in the letter, they involve other terms irrelevant to the dispute at hand.

Moreover, nothing about the earlier communications between Sohi and defendant (including defendant’s brochure and Sohi’s proposal) or the later 1996 agreement suggests that the parties intended the letters to make up only part of the parties’ total agreement. Therefore, as to “requirements” of the funding and “defendant’s rights” under the agreement, the letters are integrated. The extrinsic evidence plaintiff seeks to introduce would “conflict

with the part that has been integrated in writing” and therefore does not fall into the exception to the parol evidence rule. First Mortgage Investors, 76 Wis. 2d at 157, 250 N.W.2d at 366.

2. Language of the 1994 and 1995 letter agreements

A better argument for considering extrinsic evidence is that the terms of the 1994 and 1995 letter are ambiguous. If possible, the parties’ intent must be drawn from the plain and ordinary meaning of their agreement. Huml, 2006 WI 87, ¶ 52, 293 Wis. 2d 169. However, if the agreement is “ambiguous” in the sense that it is “reasonably susceptible to more than one meaning,” Columbia Propane, 2003 WI 38, ¶ 25, 261 Wis. 2d 70, 661 N.W. 2d 776, evidence of the parties’ intent may be drawn from “the conduct of the parties and negotiations which took place, both before and after the execution of the documents, and . . . all related documents of the parties,” Smith v. Osborne, 66 Wis. 2d 264, 272, 223 N.W.2d 913, 917 (1974).

The letter agreement provides that one “restriction” imposed on the grant is that defendant “have unrestricted rights at no cost to the results of this research.” Defendant’s theory is that plaintiff’s patent is a “result of this research” and defendant has “unrestricted rights” to it according to the funding letters. For defendant to be correct, one of the following must be true: (1) the term “results of this research” covers intellectual property

developed as a result of this research or (2) the term “unrestricted rights” includes the right to use information resulting from the research in ways that would otherwise be restricted by patent rights.

The problem is that each of these phrases is susceptible to more than one reasonable interpretation. It is equally reasonable to interpret “results of this research” as meaning the *academic* results of the research. The word “research” suggests as much. A closer question is whether it is reasonable to interpret “unrestricted rights” as not including a right to use those academic results in ways otherwise restricted by patent rights. As defendant points out, “unrestricted” is a broad term; it is hard to see how exercising patent rights against defendant would not “restrict” defendant. To see the problem, it helps to shift the focus to the phrase in its context: “unrestricted rights . . . *to* the results of this research.” The letter does not describe rights *in* the results, but rather *to* the results. The word “to” suggests that “unrestricted rights” relates to “access rights” to the academic results.

Even ignoring the use of the word “to” rather than “in,” the letter refers to “rights” only in the context of the “results of this research,” and fails to articulate what kind of “rights” were described. Defendant points out that “unrestricted” is a broad term, but it is unreasonable to interpret “unrestricted” as “limitless,” which is where defendant’s argument leads. Such a reading would suggest that defendant has a right to, say, destroy the results of the research, or tamper with it, or, more to the point, take full ownership of it. Thus, if

defendant's interpretation is correct, it should be arguing for a *transfer* of the '752 patent. There is no principled rationale for interpreting "unrestricted rights" to include a right to *practice* a patent resulting from the research but not a right to *exclude others* from practicing the patent or a right to take full ownership of the patent. These concerns demonstrate why a narrower reading of "unrestricted rights" is nonetheless reasonable. Accordingly, I find the letters ambiguous.

3. Extrinsic evidence of intent

Because the 1994 and 1995 letters are ambiguous, I will consider the extrinsic evidence to determine the parties' intent. Osborne, 66 Wis. 2d at 272, 223 N.W.2d at 917. Before turning to that question, however, I must address defendant's argument that determining the parties' intent behind an ambiguous written document is not a proper question for summary judgment. Defendant cites several Wisconsin cases in support of its position, but whether a matter can be resolved on summary judgment is a matter of procedure and is therefore governed by federal rules. In this case, the applicable rule is Fed. R. Civ. P. 56, which provides that summary judgment is available whenever "there is no genuine issue as to any material fact and . . . the movant is entitled to judgment as a matter of law." Under this standard, summary judgment is warranted so long as the undisputed facts are such that no reasonable jury could find that the parties intended that defendant

receive a license to the '752 patent.

The facts support such a conclusion. Before the 1994 agreement was signed, nothing in the parties' conduct or negotiations suggested that the parties were concerned with the question of intellectual property ownership. The dealings between Sohi and defendant's representative indicated either that defendant did not intend to put any conditions on the money it provided plaintiff or that, if it did, any conditions would relate to academic use of the research results. (Plaintiff suggests that defendant's concern at this stage may have been attempting to avoid the university's "overhead requirements," which it placed on conditional grants. However, the facts are inconclusive regarding exactly what defendant was aware of regarding plaintiff's overhead policy, so I do not rely on this point.)

As to the first point, early on in the negotiations between Sohi and defendant, defendant's representative gave Sohi a brochure stating that defendant's grants "are made as an unrestricted gift to the university" and defendant referred to the grant as a "gift from Intel, officially unrestricted, unofficially for the work in the proposal." Sohi stated in his proposal that "indirect costs will not have to be paid if the money is given as an unrestricted gift" and defendant did not pay indirect costs; indeed, it had a policy against paying such costs.

As to the second point, the brochure asked, "What will result from the research: seminars, papers, software?" After defendant's representative asked Sohi to "specify specific

milestones and deliverables,” Sohi described the “deliverables” in the research proposal as the kinds of *information* he would provide defendants. Thus, his “deliverables” include the “results of our experiments” and use of his software by defendant’s engineers “who wish to use the software tools to understand and/or carry out their own studies of the multiscalar concept.” Defendant’s representatives, Mulder and Lai, told Sohi they were interested in “seeing the data from [Sohi’s] experiments” and referred to the results as “data from the experiments.”

Defendant contends that Sohi’s proposal includes evidence that the parties intended that a license be part of the funding agreement because the proposal also discusses a “bidirectional transfer of technology.” What defendant does not mention is that the proposal does so in the context of its stated objective of “creat[ing] an *environment*” by which the technology “*could be*” transferred to defendant. Defendant makes much of the fact that the proposal provides for defendant’s future use of the research results in its products; however, the proposal describes that “deliverable” as “[a] *preliminary* assessment of the enhancements required to [defendant’s product] to use the multiscalar concept.” Sohi carefully avoided offering any right to use the concept in defendant’s product, instead merely offering to exchange information about how it would be possible to use the concept in defendant’s product. Because the proposal is silent on the matter of intellectual property rights, this “deliverable” is more like a sales pitch (“let me show you how to upgrade your

product to use this idea”) than an implicit promise to allow defendant to use the concept commercially.

The language defendant points to might be more questionable if the parties had proceeded to negotiate the terms of intellectual property rights before defendants sent out the 1994 funding letter, or in the context of getting it signed. They did not. The parties’ treatment of the 1994 letter, before and after its signing, is consistent with its being a gift and not with its providing intellectual property rights. Among other things, the 1994 letter was one of defendant’s “standard letters” and it was sent to the university official that defendant believed could “sign the grant agreement and [would] be receiving the money.” After a university official signed the agreement, the chair of the department wrote a representative of defendant, thanking defendant for its “generous donation to the University.” Defendant did not respond to the thank you letter or object to the chair’s characterization as a “donation.”

Moreover, as Sohi’s research proceeded, defendant asked Sohi to make presentations and status reports on his research, but there is no evidence that defendant ever requested information regarding the development of any intellectual property. (Although there is an evidence that by 2000 the parties had developed a “gentleman’s agreement,” under which plaintiff would keep defendant informed about intellectual property developments, there is no evidence that this agreement had been in place since 1994 or had been set up near then.)

This is consistent with Sohi's status report, in which he discussed the research that formed the basis of the '752 patent (memory dependence analysis) but did not mention the fact that he thought the idea was patentable.

The same applies to the 1995 funding letter. At no point did the parties negotiate the terms of intellectual property rights before the 1995 letter was sent out. When it was sent out, it included essentially the same language and followed the same process as the 1994 letter. The one change to the letter was the addition of a new "condition," which was that the university publicly acknowledge the grant and provide defendant copies of these public acknowledgments.

The parties' first negotiations regarding intellectual property are telling. The negotiations occurred in 1996, after Sohi had started the process of patenting the invention. Sohi asked that the language in the funding letter be changed to state expressly that defendant's right of access to the results of the research would be limited to use of the research for "internal evaluation purposes." Defendant agreed to the change in language, adding language to the letter that expressly excluded any right for defendant to use the research for "commercial" purposes.

According to defendant, Sohi's request for a change in language indicates that the earlier language meant something broader than the new language (and therefore granted a license). If defendant were correct, it would make no sense for Sohi to ask for any change

in the language, given what he knew about the progress of his invention by that time (completed). Under defendant's reading of the earlier language, defendant would have had a full license to the completed invention by the time the language changed in 1996. Likewise, defendant's reaction to the changed language makes no sense under defendant's view: because defendant did *not* know that the invention was completed (or had even been started), it makes no sense for it to change the scope of the funding agreement for "free" (it did not change the amount of its funding). Indeed, nothing in the record suggests that defendant put up *any* resistance to Sohi's request for a change in the language.

Finally, the parties' later dealings are further indication that the parties never intended to license intellectual property through the funding letters. Plaintiff sought to offer a license to defendant in 2001 and 2006. At neither time did defendant respond that it already had a license. Indeed, at one point, defendant sought to license the '752 patent by including it in a subscription license program. Defendant responds that it was not aware that the inventors had conceived of the '752 patent under the 1994 and 1995 funding letters and would not have known that until discovery in this case. This is a little hard to buy. The licensing offers identified the '752 patent, which defendant could have reviewed to easily determine (1) the names of the inventors (including Sohi); (2) the date of the application; and (3) the nature of the patent as involving a "table based data speculation circuit" (title) and "data dependence speculation," '752 pat., col. 3, lns. 63-64 (brief summary of the

invention).

Even assuming that defendant remained genuinely unaware of funding of the research underlying the '752 patent after it received the offer to license, this only illustrates another problem with reading the 1994 and 1995 letter agreements as licenses. The letters had no mechanism for keeping tabs on intellectual property developed by plaintiff during the "research." As a result, under the letter agreement, defendants were bound to miss their "license" until discovery revealed crucial facts about the invention date. In other words, if the 1994 and 1995 letters are read as licensing agreements, they are unwieldy ones.

All the parties' dealings both before and after the 1994 and 1995 funding agreements indicate that the parties never intended that the agreements provide defendant an express license in intellectual property developed during the research period funded. No reasonable jury could find otherwise. Therefore, I will grant plaintiff's motion for summary judgment as to defendant's defense and declaratory judgment counterclaim that it had an express license to practice the '752 patent.

B. Implied License

Even without a formal license, a defendant may have an "implied license" to practice a patent if (1) the patent holder's words or conduct would allow the defendant to reasonably infer that the patent holder consents to the allegedly infringing activities and (2) the

defendant acts on the words or conduct. Wang Laboratories v. Mitsubishi Electronics America, Inc., 103 F.3d 1571, 1580 (Fed. Cir. 1997) (citing De Forest Radio Telephone & Telegraph Co. v. United States, 273 U.S. 236, 241 (1927)).

Defendant grounds its claim to an implied license to practice the '752 patent on Sohi's disclosure of the results of his research and his failure to mention that he had received a patent on the invention defendant was funding. Defendant emphasizes that Sohi's conduct occurred in the context of his repeated opportunities to disclose the patent application and its issuance and a "gentleman's agreement" under which Sohi promised to let defendant know if he obtained a patent.

However, even if Sohi's representations suggested to defendant that it had nothing to worry about, they cannot be considered in isolation. In Stickle v. Heublein, Inc., 716 F.2d 1550, 1559 (Fed. Cir. 1983), the patentee had encouraged the defendant to continue work on incorporating a patented invention into new products before he died; at the time, the new product was at the design stage. After the patentee died, the person putatively charged with protecting the patentee's rights from infringement told the defendant that his understanding was that "all talks [with the patentee] had been general and no basis for a [licensing] contract had been reached." Id. The Court of Appeals for the Federal Circuit held that, regardless what the patentee said about the project at the design stage, no implied license existed because the defendant did not become "'committed' to a course of infringing

action” until after the patentee made statements to defendant that were inconsistent with the implied license.

In this case, it is undisputed that Sohi’s disclosure of his research and his “gentleman’s agreement” occurred before January 2001, when plaintiff sent defendant a letter seeking to license the ‘752 patent. This changes everything, especially because defendant did not attempt to include the alleged invention of the ‘752 patent in its processors (memory disambiguation) until September 2001 at the earliest.

Defendant contends that despite plaintiff’s January 2001 letter, it was reasonable for defendant to rely on its “relationship of trust” and “two-year course of dealing” with Sohi because the 2001 letter did not mention Sohi or his multiscalar research project or otherwise alert defendant to the possibility that the ‘752 patent was related to this technology. Defendant’s position would be more sympathetic had the letter not included the title of the patent and identified the patent, which names Sohi as an inventor and provides the application date on the first page. More important, defendant’s failure to make a connection between the Sohi research and the ‘752 patent is irrelevant. The question is whether defendant has an implied license to practice *the ‘752 patent*, not Sohi’s research. The 2001 letter undeniably staked out plaintiff’s claim in the ‘752 patent, even if it did not tie it back to Sohi’s research. Under these circumstances, there is no ground for finding an implied license. Plaintiff’s motion for summary judgment will be granted as to defendant’s implied

license defense and its declaratory judgment counterclaim on the same ground.

Defendant's waiver defense appears to be nothing more than a reiteration of the implied license defense. Wang Laboratories v. Mitsubishi Electronics America, Inc., 103 F.3d 1571, 1580 (“[A]n implied license merely signifies a patentee’s waiver of the statutory right to exclude others from making, using, or selling the patented invention.”). If so, it suffers from the same flaws. Therefore, I will grant plaintiff’s motion for summary judgment as to the defense as well as on its declaratory judgment counterclaim that plaintiff waived its right to enforce the patent by its conduct leading up to the January 2001 licensing letter. It remains unclear whether defendant has any other “waiver defense” because the parties do not discuss waiver in any detail. As I explain below, any remaining waiver defense may proceed to trial.

C. Equitable Estoppel

Defendant asserts as a defense and counterclaim that the ‘752 patent is unenforceable because of equitable estoppel. This type of defense does not overlap perfectly with an implied license defense, but the differences are immaterial in this case. “The primary difference between the estoppel analysis in implied license cases and the analysis in equitable estoppel cases is that implied license looks for an affirmative grant of consent or permission to make, use, or sell” while equitable estoppel “focuses on ‘misleading’ conduct suggesting

that the patentee will not enforce patent rights.” Wang, 103 F.3d at 1581. What the defenses share is that each requires that conduct of the patentee led the other to act. Id. As with the implied license defense, defendant’s estoppel defense cannot succeed because plaintiff’s January 2001 license letter made it clear that plaintiff intended to enforce the ‘752 patent. Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1371 (Fed. Cir. 2001) (equitable estoppel requires that patentee have led “the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer”).

Regardless whether Sohi’s assurances may have misled defendant earlier, the January 2001 licensing letter undid any damage done. By the time defendant began work on the first of the allegedly infringing products in September 2001, it could not have reasonably inferred that plaintiff would allow it to practice the patent without obtaining a formal license.

Defendant’s next argument is that it was reasonable for defendant to infer that the ‘752 patent would not be enforced against it because it entered into a separate licensing agreement with plaintiff in 2003 regarding patents related to manufacturing processes for semiconductor chips. This argument goes nowhere. The 2003 license was limited explicitly to certain named patents, which did not include the ‘752 patent. Defendant’s argument that it was reasonable to assume that patents not listed would not be enforced flies in the face of the parties’ agreement. Because defendant’s circumstances provide no basis for barring plaintiff’s suit by means of equitable estoppel, plaintiff’s motion for summary judgment will

be granted as to defendant's equitable estoppel defense and declaratory judgment counterclaim.

D. Laches

Plaintiff contends that defendant's laches defense and declaratory judgment counterclaim fail because there is no evidence of undue delay. In response, defendant is silent. By declining to oppose plaintiff's arguments in favor of summary judgment on that defense and counterclaim, defendant has waived its right to challenge that position. Wojtas v. Capital Guardian Trust Co., 477 F.3d 924, 926 (7th Cir. 2007). At any rate, defendant failed to adduce evidence of undue delay. Therefore, plaintiff's motion for summary judgment will be granted as to defendant's laches defense and declaratory judgment counterclaim.

E. Unclean Hands and Waiver

In its opening brief, plaintiff contended generally that defendant's "implied license and equitable defenses remain under-developed and lack specificity, despite [plaintiff's] effort to flesh out these theories through discovery." Plaintiff challenged defendant to "put up or shut up" on its license and equitable defenses "in all their various attire." Dkt. #152, at 37. Plaintiff identified what it thought were defendant's three defenses, one of which was

that

[plaintiff's] delay in notifying [defendant] of its infringement allegations bars any claim of infringement on the grounds of estoppel, waiver, abandonment, or laches.

Id. Plaintiff does not mention the doctrine unclean hands or discuss “waiver” or “abandonment” in detail at any point in the brief. In response, defendant simply pointed out that plaintiff did not provide legal argument in support of summary judgment on defendant’s unclean hands and waiver defenses. (Defendant does not mention abandonment, which may be it did not assert that defense in its answer, dkt. #18.)

Under Celotex v. Catrett, 477 U.S. 317, 323-24 (1986), a party seeking summary judgment bears the “initial responsibility of informing the district court of the basis for its motion” and identifying those portions of the record it believes supports its position. As to defendant’s unclean hands and waiver defenses, plaintiff’s attempt to “inform the district court” of a basis for summary judgment must be that defendant has failed to develop or specify its facts or theories as to these defenses. However, plaintiff’s argument is more a half-hearted discovery dispute than a real attempt to identify failings in defendant’s defenses and counterclaims. To the extent plaintiff was unhappy with its attempts to pin defendant down on its defenses, it could have brought a motion to compel. At the very least, it should have made an effort to identify each of the faulty defenses and briefly explained why the facts in the record did not appear to support such a defense. Simply inviting defendant to

“put up or shut up” on all its claims is insufficient to meet even the light burden Celotex imposes on moving parties. Plaintiff failed to identify a basis for summary judgment on defendant’s unclean hands defense or its waiver defense (except insofar as defendant’s waiver defense boils down to a reiteration of its implied license defense). Therefore, plaintiff’s motion for summary judgment will be denied as to these defenses and defendant’s declaratory judgment counterclaims.

II. INVALIDITY COUNTERCLAIM

UNDISPUTED FACTS

A. The ‘752 patent

1. Background and relevant claims

The ‘752 patent is entitled “Table Based Data Speculation Circuit for Parallel Processing Computer.” In general terms, the invention involves parallel processor architecture aimed at reducing delays in processing caused when a computer processor executes certain types of instructions out of order. Out-of-order processing is generally desirable because it can increase the speed of a computer. However, out-of-order execution of certain instructions, called “LOAD” and “STORE” instructions, could cause an error (and therefore delays). This happens whenever reordered LOAD and STORE instructions access the same memory address because the LOAD instruction depends on the STORE instruction

to place a particular value at the address before the LOAD instruction accesses the memory address. In many instances, the processor cannot determine whether a LOAD instruction is dependent on a STORE instruction until after the processor executes the instructions. This is where the '752 patent comes in. The patent claims a circuit that can help "predict" when a LOAD instruction will be dependent on a given STORE instruction to avoid processing those instructions out of order. At issue in this case are claims 1 and 2 of the '752 patent, which read as follows:

1. In a processor capable of executing program instructions in an execution order differing from their program order, the processor further having a data speculation circuit for detecting data dependence between instructions and detecting a mis-speculation where a data consuming instruction dependent for its data on a data producing instruction of earlier program order, is in fact executed before the data producing instruction, a data speculation decision circuit comprising:

a) a predictor receiving a mis-speculation indication from the data speculation circuit to produce a prediction associated with the particular data consuming instruction and based on the mis-speculation indication; and

b) a prediction threshold detector preventing data speculation for instructions having a prediction within a predetermined range.

2. The data speculation decision circuit of claim 1 wherein the prediction threshold detector includes an instruction synchronization circuit instructing the processor to delay a later execution of the particular data consuming instruction until after the particular data producing instruction when the prediction associated with the data consuming instruction is within the predetermined range.

The specification describes one of the "objects" of the invention as "provid[ing] a predictor circuit that may identify data dependencies on an on-going or dynamic basis." '752 pat., col.

4, lns. 31-33. It explains that “[t]he prediction provided by the predictor circuit 33 . . . is updated based on historical mis-speculations detected by the data speculation circuit 30. For this reason, the data speculation circuit 30 must communicate with the predictor circuit 33 on an ongoing basis.” ‘752 pat., col. 8, lns. 7-11. In describing a “prediction,” the specification explains that it normally starts at zero and may be incremented or decremented, *id.*, col. 11, lns. 33-35, and if a prediction to synchronize is wrong, a prediction is decremented toward a state under which synchronizations will not occur. *Id.*, col. 12, lns. 14-16.

2. The court’s prior construction of “predictor” and “prediction” in the ‘752 patent

At an earlier stage in this case, the parties requested construction of certain claim terms. Among those terms were the terms “predictor” and “prediction” as they appear in claims 1 and 2. As to the first of those terms, defendant proposed a construction that would require a “predictor” to draw its value entirely from “historical mis-speculation indications.” As to the second of those terms, plaintiff proposed that a “prediction” be a “dynamic and multi-bit value which indicates the likelihood” of mis-speculation. Defendant opposed plaintiff’s construction, arguing that “dynamic” means “updated,” which was “already captured elsewhere in the claim” and could create the possibility for inaccuracy and confusion. Its opposition to “multi-bit” was also that the meaning was captured elsewhere.

Defendant contended that “prediction” means “value indicating the likelihood” of mis-speculation. At a claims construction hearing, plaintiff agreed with my proposal that the term could be construed as a “variable that indicates the likelihood [of] . . . mis-speculation.”

After the claims construction hearing, I construed those terms (among others). For “predictor,” I declined to accept defendant’s proposed requirement that a predictor produce only predictions “based on historical mis-speculation indications,” noting that although the specification states that the “prediction provided by the predictor circuit” would be updated “based on historical mis-speculations,” ‘752 pat., col. 8, lns. 7-9, it also describes altering the prediction when a mis-speculation does not occur, ‘752 pat., col. 12, lns. 14-16. As for “prediction,” I noted that plaintiff had agreed to the construction “variable that indicates the likelihood [of] . . . mis-speculation” and construed the term using that language.

B. The prior art

United States Patent No. 5,619,662 (the ‘662 patent) is entitled “Memory Reference Tagging” and names Simon C. Steely, Jr., David J. Sager and David B. Fite, Jr. as inventors. The ‘662 patent discloses four “memory reference tagging techniques” that address the question of avoiding errors created by pairs of disordered LOAD and STORE instructions. The first of these techniques is described as follows:

[W]hen a pair of load and store instructions cause a problem the first time

through the write buffer, a portion of the address in memory which resulted in a load-store collision are saved in a register and this portion is fed to the memory tag store 33 and stored at the location in the store 33 determined by the line predictor address. Generally the lower order 2 to 6 bits of the address are sufficient to determine collisions between memory reference instructions The next time these instructions are called by the line predictor, the memory reference tag circuit will provide the tag bits to be used by the instruction scheduler 38. If these two instructions appear with the identical tag bits . . . the [scheduler] will not reorder the instructions.

'662 pat., col. 48, lns. 1-6. If a given pair of LOAD and STORE instructions do not have identical tag bits, the scheduler will allow the pair to execute out of order.

The second technique involves

tag[ging] the memory reference instructions with a problem number which could be a number provided from a counter ie. 1 or 2 bits. Two memory reference instructions with the same address and number will not reorder. However, if the two memory reference instructions have a different number, the instructions will reorder.

'662 pat., col. 48, lns. 55-61.

The third technique uses

a bit to indicate that an instruction should not be reordered. That is for a store that previously caused a problem in the write buffer, the instruction is tagged with a bit indicating that the [instruction scheduler] cannot reorder memory reference instructions around the Instruction tagged with the bit. This in general will not affect reordering of any instructions before the tagged instruction nor reordering of any instructions after the tagged instructions.

'662 pat., col. 48, ln. 62-col. 49, ln. 3.

The fourth technique appears in claim 13, which is dependent from claims 8 and 9.

Those claims read as follows:

8. Apparatus, comprising:
means for providing a tag for each one of a plurality of memory reference instructions;
means, addressed by an instruction address of said plurality of memory reference instructions, for storing said tags for said memory reference instructions;
means for ordering execution of a first, fetched memory reference instruction after a second, fetched memory reference instruction if a first tag provided from said tag store means and associated with said first instruction is different than a second tag provided from said tag store means and associated with said second instruction and for maintaining said order of first and second instructions if tags associated with each of said instructions are equal.
9. The apparatus as recited in claim 8 wherein said means for providing tags comprises:
means for determining if a first memory location address addressed by a load instruction and a second memory location address addressed by a store instruction of a load-store pair of memory reference instructions address the same address location in a memory.
13. The apparatus as recited in claim 9 wherein said means for providing tags further comprises:
means for counting a number of instances that said store-load pair have the same address and can not be reordered, and for using a count value as tag bits associated with each of said store-load instructions.

‘662 pat.

OPINION

Oddly enough, given its efforts to prove it had a license to the ‘752 patent, defendant

contends that the patent is invalid as anticipated by disclosures in the '662 patent. Defendant focuses on the four "memory reference tagging techniques" disclosed in the '662 patent. (There is no dispute that the '662 patent is prior art to the '752 patent.) The parties dispute whether the four techniques disclose a number of elements common to claims 1 and 2 of the '752 patent, but the fate of defendant's motion for summary judgment can be determined upon reviewing a smaller subset of those elements (the production of a "prediction" used to determine whether to prevent data speculation). None of the techniques disclose it. In re Gleave, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (prior art reference not anticipatory unless it discloses each and every element of claimed invention, either explicitly or inherently).

First, the parties dispute the meaning of the term "prediction." The analysis must start here. Cf. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (court must determine meaning and scope of claim terms before deciding whether product infringes); O2 Micro International, Ltd. v. Beyond Innovation Technology Co., Ltd., 521 F.3d 1351, 1360 (Fed. Cir. 2008) (district courts have duty to construe terms if "the parties raise an actual dispute regarding the proper scope" of terms). The term "prediction" has already been construed once to mean "variable that indicates the likelihood that the data speculative execution of a load instruction will result in a mis-speculation." Now that the disputes have sharpened, the parties have realized that they are not done disagreeing about

the meaning of “prediction.” It is not that either party is asking for last-minute reconsideration of a term that has already been construed or is attempting to rehash earlier claim construction arguments. The parties simply disagree about what the court’s construction means. In particular, the parties dispute whether the terms “variable” and “indicates the likelihood” require that a prediction be capable of changing on an ongoing basis or may remain fixed after a single mis-speculation.

Defendant contends that “variable” is broad enough to include a value that “varies” but once (when it is fixed) and that “indicates the likelihood” is broad enough to include a value that indicates only that an incident of mis-speculation has occurred (as the memory reference tags do in the ‘662 patent). Plaintiff contends that a “variable that indicates the likelihood” of mis-speculation must be a value that can be updated on an ongoing basis.

Deciding the meaning of the court’s construction is not the proper focus. It would be one thing if the earlier construction had addressed and resolved a given dispute between the parties and the parties simply disagreed about that point. In this case, the parties did not identify the dispute as clearly as they do now and the construction did not address it. Originally, plaintiff asked that the term be construed as “dynamic” and “multi-bit” and defendant objected on the ground that those terms were potentially confusing and unnecessary because the limitations were present elsewhere. Thus, defendant contended that a “predictor” produced a value “based on historical mis-speculation indications.” There did

not appear to be any dispute that, directly or indirectly, a “prediction” must be updatable on an ongoing basis. Thus, when a construction was decided upon, it was because plaintiff agreed to terms believed to be less confusing than “dynamic” and “multi-bit.” Order, dkt. #65, at 15. Now the parties have identified a new dispute regarding the scope of the ‘752 patent. This type of dispute is best decided in terms of the underlying claim language itself. Instead of deciding whether “variable” and “indicates the likelihood” are broad or narrow terms, I must decide whether “prediction,” as used in the patent, is as broad or narrow as the parties contend.

Before deciding that matter, though, I should say a word about the effect of construing the scope of a key claim term this late in the game. In the ideal world, one or both of the parties would have moved for clarification as soon as their new dispute came to light so as to allow the parties’ experts time to incorporate the resulting construction into their respective analyses. However, neither party brought this matter to the court’s attention until summary judgment. That was a risky venture. Neither side can say that they have been “prejudiced” by this last-minute decision because the meaning of the claim term remained uncertain with respect to their newfound dispute until now. Having brought the dispute this late in the game, the parties have little recourse but to live with the results.

Turning to the parties’ dispute, I conclude that a “prediction” must be capable of receiving ongoing updates. Claim 1 describes “producing” a “prediction” from a “mis-

speculation indication” generated in a data speculation circuit and determining whether that “prediction” is “within a predetermined range” to decide whether to prevent data speculation. Thus, the claim language itself establishes that a “prediction” is something other than a stored “indication” and is capable of having a “range” of values, despite the fact that it appears to receive only (one-at-a-time) indications that mis-speculations have occurred. On its face, this language suggests that a prediction must be capable of changing over time. The specification only confirms this suggestion. First, it explains that one of the “objects” of the invention is to “provide a predictor circuit that may identify data dependencies on an on-going or dynamic basis.” ‘752 pat., col. 4, lns. 31-33. Next, and more important, the specification explains in unequivocal terms that “[t]he prediction provided by the predictor circuit 33 . . . is updated based on historical mis-speculations detected by the data speculation circuit 30. For this reason, the data speculation circuit 30 must communicate with the predictor circuit 33 on an ongoing basis.” ‘752 pat., col. 8, lns. 7-11; see also id., col. 11, lns. 33-35 (prediction normally starts at zero and may be incremented or decremented); id., col. 12, lns. 14-16 (if prediction to synchronize is wrong, prediction is decremented toward do not synchronize state). Neither the claim language nor the specification supports defendant’s proposed construction that a “prediction” may include values that are fixed once to indicate a single incident of mis-speculation. I agree with plaintiff that a “prediction” must be capable of ongoing change.

This construction is fatal to defendant's contention that the four techniques disclosed in the '662 patent anticipate the '752 patent. As for the first three techniques, each describes assigning a tag to load-store pairs that have created an error, '662 pat., col. 48, lns. 1-6 and 55-61; id., col. 48, ln. 62-col. 49, ln. 3, but none disclose a value capable of ongoing change. For each, the tag is designed to indicate only that a mis-speculation has occurred, not keep track of mis-speculations on an ongoing basis. Therefore, none of these three techniques anticipate the '752 patent.

The closest defendant comes (on this question) is the fourth technique, claim 13, which describes a "means for counting a number of instances that said store-load pair have the same address and can not be reordered, and for using a count value as tag bits associated with each of said store-load instructions." Thus, under claim 13, a value related to mis-speculations receives updates on a regular basis. The problem with claim 13 lies elsewhere.

Claim 1 of the '752 patent requires that the ongoing changes to a "prediction" play a role in "preventing data speculation." '752 pat., cl. 1 ("prediction threshold detector" must "prevent[] data speculation for instructions having a prediction within a predetermined range"); see also id., col.7., ln 67-col. 8, ln 11 ("The predictor circuit 33 provides a dynamic indication to the data speculation circuit 30 as to whether data speculation should be performed."). Claim 13 of the '662 patent does not disclose using the "counter" to decide whether to prevent data speculation. Claim 8 discloses the mechanism relied on by claim

13 to prevent data speculation. Under that mechanism, speculation is prevented only “if tags associated with each of said instructions are equal,” without regard to the “counter” in claim 13. Nowhere in the ‘662 patent is there a disclosure of any mechanism by which claim 13’s “counter” would inform the data speculation prevention process. Because the ‘752 patent includes this requirement, claim 13 of the ‘662 patent does not anticipate. In sum, none of the techniques defendant identifies anticipates the challenged claims in the ‘752 patent; therefore, defendants’ motion for summary judgment will be denied as to its counterclaim that the ‘752 patent is invalid as anticipated by the four memory reference tagging techniques disclosed in the ‘662 patent.

III. WILLFULNESS

Defendant has moved for summary judgment on plaintiff’s claim of willful infringement. I will grant that motion. Under In re Seagate Technology, LLC, 497 F.3d 1360, 1371 (Fed. Cir. 2007), the first element of willfulness is “that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent,” a matter that is decided without regard to “the state of mind of the accused infringer.” Defendant contends that a number of its defenses are “objectively reasonable” and therefore the likelihood of infringement is not sufficiently “objectively high” under Seagate.

As an initial matter, plaintiff contends that the matter of willfulness is best left for determination after trial, when the record has been fully developed. There is some support for this position. For example, Seagate itself provides that the “objectively-defined risk” should be “determined by the record developed in the infringement proceeding.” Id. Moreover, all but one of the cases defendant cites in support of entering judgment on the issue of willfulness were decided after a trial on the issues. Black & Decker, Inc. v. Robert Bosch Tool Corp., 2008 WL 6051, *7 (Fed. Cir. 2008) (unpublished); Honeywell International Inc. v. Universal Avionics Systems Corp., 585 F. Supp. 2d 636, 644 (D. Del. 2008); ReQNet.com v. Lansa, Inc. 533 F. Supp. 2d 397, 420 (S.D.N.Y. 2008); Franklin Electric Co. v. Dover Corp., 2007 WL 5067678, *8 (W.D. Wis. Nov. 15, 2007) (summary judgment after remand); Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1339 (Fed. Cir. 2008); TGIP, Inc. v. AT&T Corp., 527 F. Supp. 2d 561, 579 (E.D. Tex. 2007).

Nonetheless, nothing in Seagate suggests that a court cannot decide before trial whether a given defense undermines a finding of “objectively high likelihood that [defendant’s] actions constituted infringement of a valid patent.” Defendant identifies several of its defenses that it contends are “objectively reasonable,” but the one that wins is the licensing defense. The language plaintiff accepted in the 1994 and 1995 letters when receiving those grants is troubling. Under one reasonable interpretation of the letters, plaintiff gave away its right to exclude defendant from practicing any intellectual property

Sohi developed under the grant. Although I have concluded that the language was ambiguous and the extrinsic evidence overcame such an interpretation, whether the language was ambiguous in the first place was not an open-and-shut question. It was only after close consideration of the different terms of the letter that I concluded that it was ambiguous. (Had I not so decided, it would have been hard to say that no license existed given the letters' grant of "unrestricted rights.") Because this question was relatively close, it dooms plaintiff's willfulness claim. DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc., 567 F.3d 1314, 1337 (Fed. Cir. 2009) (no objectively high likelihood where "question of equivalence was a close one"); Cohesive Technologies, Inc. v. Waters Corp., 543 F.3d 1351, 1374 (Fed. Cir. 2008) (no objectively high likelihood where claim construction was susceptible to reasonable construction that would have lead to finding of noninfringement). I conclude that there was not an "objectively high likelihood" of a finding of infringement in light of defendant's licensing defense. Therefore, I will grant defendant's motion for summary judgment of no willful infringement.

ORDER

IT IS ORDERED that

1. Plaintiff Wisconsin Alumni Research Foundation's motion for leave to file a surreply, dkt. #222, is GRANTED.

2. Plaintiff's motion for partial summary judgment on defendant Intel Corporation's license defenses and counterclaims, dkt. #144, is

a. GRANTED with regard to defendant's defenses and counterclaims that plaintiff granted it an express or implied license to United States Patent Number 5,781,752 or is equitably estopped or barred by laches from asserting that patent against it; and

b. DENIED with regard to defendant's "unclean hands" defense and counterclaim or any waiver defense or counterclaim not related to plaintiff's conduct leading up to January 2001.

2. Defendant's motion for partial summary judgment of invalidity and no willful infringement, dkt. #142, is

a. DENIED with regard to defendant's counterclaim that United States Patent Number 5,781,752 is invalid as anticipated by four "memory reference tagging" techniques disclosed in United States Patent Number 5,619,662; and

b. GRANTED as to plaintiff's claim for willful infringement.

Entered this 17th day of September, 2009.

BY THE COURT:

/s/

BARBARA B. CRABB

District Judge